

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,172,566

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GREAT BRITAIN
GROUP BS2
CLASS 285

COMPLETE SPECIFICATION

Improvements relating to Pipe Unions

We, THE RUBEROID COMPANY LIMITED, a British Company, of Commonwealth House, 1 New Oxford Street, London, W.C.1. and CHEMIDUS PLASTICS LIMITED, a British Company, of Brunswick Road, Cobb's Wood, Ashford, Kent, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to unions for coupling together adjacent ends of two pipes.

Known means for connecting pipes comprise a collar which may be screwed, welded or clamped to a pipe and has a flange on its outer end and a nut which passes over the collar but not over the flange, the nut being provided with a screw-thread adapted to be screwed onto a section to be joined to the pipe. The main disadvantage of such a system is that unless there is a reduction in the diameter of the pipes, between the section to be joined and the pipe bearing the collar, the screw-threaded portion of the nut which is to be passed over the collar must be of a larger diameter than the screw threads of the pipe section to be joined. Known means for over-coming this difficulty comprised a ring, screw-threaded on its outer and inner peripheries and engageable with its outer screw threads with the screw threads of the nut, whereby the screw thread on the nut was effectively reduced to the desired size to engage with the section to be joined. This method however, produces a clumsy union and adds to the price of the union.

The invention has among its objects to mitigate this disadvantage.

According to this present invention a union for coupling together adjacent ends of two pipes comprises a cylindrical collar

for attachment on the end of one pipe and a nut for threaded engagement on the end of the other pipe, a peripheral flange on the end of the collar to engage the nut and an oppositely directed peripheral flange on the corresponding end of the nut, one of the flanges defining an opening to receive the other flange with the diameter of the opening being less than the diameter of the other flange, the flange on each of the collar and nut being cut away over a single portion of its circumference in such manner as to enable a radial edge of one flange to be introduced behind a radial edge of the other flange, the engagement of said flanges being completed by a relative rotation of the nut.

Thus engagement of the nut and collar is effected by tilting one with respect to the other, engaging a portion of the flange on one, which portion defines one end of the cut away, in the aperture formed by the cut away of the flange of the other and relatively rotating the nut and collar until the flange of one has passed completely through the aperture formed by the cut away in the flange of the other.

Preferably the collar is provided with an outwardly directed peripheral flange.

The portion of the flange on at least one of the nut and the collar defining at least one end of the cut away may be tapered so that its thickness measured in an axial direction reduces in a direction toward the cut away whereby movement of one flange through the cut away in the other flange is facilitated.

Preferably the collar and nut are both formed from a plastics material and both may, with advantage, be moulded from P.V.C. or A.B.S. The invention is particularly suitable for use with pipes made of thermoplastics materials such as P.V.C. or A.B.S. but is also suitable for use with

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metallic pipes or pipes of other materials.

The invention is diagrammatically illustrated by way of example in the drawings accompanying the Provisional Specification in which:—

Figure 1 shows a section through an assembled union;

Figures 2a, 2b and 2c show respectively a side view, end view and sectional side view of a flanged nut of the union, and

Figures 3a, 3b and 3c show respectively a sectional side view, end view and fragmentary side view of a flange collar for engagement with the nut of Figures 2a, 2b and 2c.

As shown in Figure 1 a union comprises a collar having a body part 1 and a flange 2, and a nut having a body part 3 and a flange 4, both the collar and the nut being moulded from a plastics material. The collar is adapted to be secured to a pipe, for example by solvent welding to a plastics material pipe on the surface 5, of the body part 1, and the body portion 3 of the nut is provided with gripping members 6 and a screw thread 7 whereby it may be screwed on to a pipe to which the pipe secured at surface 5 is to be coupled. A sealing O-ring 11 is provided to prevent leakage of fluids at the union.

As shown in Figures 2b and 2c the flange 4 of the nut is cut away at 8, at for example an angle of 72.5° to the axis of the nut, so as to leave a gap in the flange 4.

The nut is moulded with the screw thread extending to the flange 4. After removal from the mould the nut is machined to form a recess 10 to receive the sealing O-ring 11 advantageously formed of neoprene. The flange 2 of the collar is also received in the recess 10 upon union of the nut and collar.

As shown in Figures 3a, 3b and 3c the flange 2 of the collar is cut away at 9 corresponding to the cut away at 8 of the nut of Figures 2a, 2b and 2c.

As shown the flange 4 at both ends of the cut away portion 8 is tapered so that its thickness measured in an axial direction is reduced in a direction toward the cut away, the distance between the parallel sides of the gap so formed being, for example 0.187" for a nut of 2" outside diameter for use with a collar having a flange thickness of 0.125". The flange may however, be tapered at only one or neither of the ends if preferred.

To assemble the union the portion of the flange 4 defining one end of the cut away 8 on the nut is inserted behind the flange 2 at the end of the cut away 9 on the collar and the nut rotated with respect to the collar so that the flange 2 slides through the cut away 8 to interlock the flanges 2 and 4 and secure the collar to the nut.

WHAT WE CLAIM IS:—

1. A union for coupling together adjacent ends of two pipes comprising a cylindrical collar for attachment on the end of one pipe and a nut for threaded engagement on the end of the other pipe, a peripheral flange on the end of the collar to engage the nut and an oppositely directed peripheral flange on the corresponding end of the nut, one of the flanges defining an opening to receive the other flange with the diameter of the opening being less than the diameter of the other flange, the flange on each of the collar and nut being cut away over a single portion of its circumference in such manner as to enable a radial edge of one flange to be introduced behind a radial edge of the other flange, the engagement of said flanges being completed by a relative rotation of the nut.

2. A union for coupling together adjacent ends of the two pipes as claimed in Claim 1, in which the collar is provided with an outwardly directed peripheral flange.

3. A union for coupling together adjacent ends of two pipes as claimed in Claim 1 or 2 in which a portion of the flange on at least one of the nut and the collar defining at least one end of the cut away is tapered so that its thickness measured in an axial direction diminishes in a direction toward the cut away.

4. A union for coupling together adjacent ends of two pipes as claimed in any preceding claim in which the collar and nut are both formed of a plastics material.

5. A union for coupling together adjacent ends of two pipes as claimed in Claim 4 in which the collar and nut are moulded from P.V.C.

6. A union for coupling together adjacent ends of two pipes as claimed in Claim 4 in which the collar and nut are moulded from A.B.S.

7. A union for coupling together adjacent ends of two pipes as claimed in any of Claims 2 to 6 in which a sealing member is accommodated in a recess formed in the nut immediately behind its flanged end.

8. A union for coupling together adjacent ends of two pipes as claimed in Claim 7 in which the sealing member is an O-ring of neoprene.

9. A union for coupling together adjacent ends of two pipes substantially as hereinbefore described with reference to and as illustrated in the drawings accompanying the provisional specification.

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Agents for the Applicants.

FIG. 1.

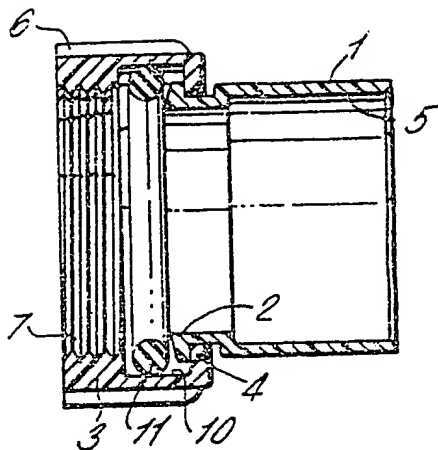


FIG. 2a.

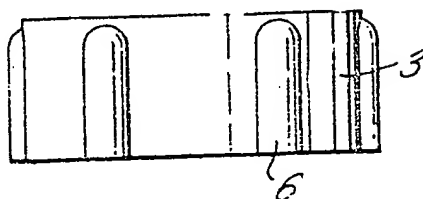


FIG. 2b.

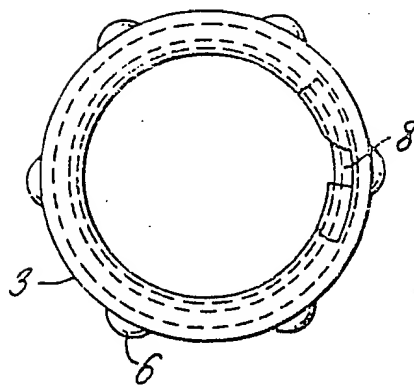
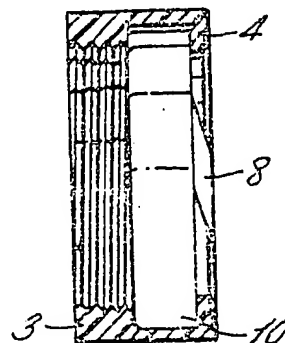


FIG. 2c.



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2 SHEETS

PROVISIONAL SPECIFICATION
This drawing is a reproduction of
the Original on a reduced scale.
SHEET 2

FIG. 3a.

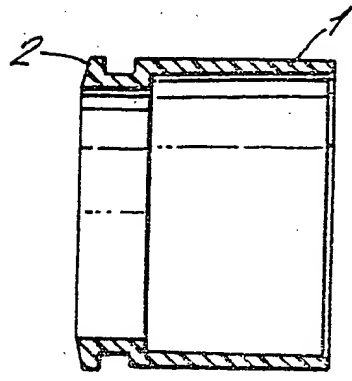


FIG. 3b.

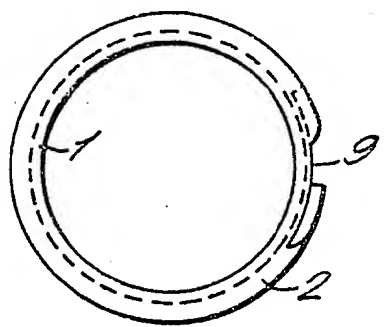


FIG. 3c.

